

CLINICAL MANIFESTATIONS: COVID-ASSOCIATED DIARRHEAL SYNDROME

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The article presents the results of observation of 37 patients with coronavirus infection in children, from 8 years to 16 years old, 22 boys (59,5%), 15 girls (40,5%). The diagnosis of COVID-19 coronavirus infection required either laboratory confirmation or the presence of characteristic clinical signs, including pneumonia. The first results of the study indicate the importance of prevention and early detection of coronavirus infection in children. The course of COVID-19 in children has a number of specific features, in particular, the disease is often asymptomatic or with an unexpressed clinical picture. Children with COVID-19 with digestive symptoms have a poorer clinical outcome and a higher risk of severe illness than those without digestive symptoms, highlighting the importance of considering symptoms such as diarrhea in order to suspect COVID-19 in the early stages of illness before respiratory symptoms develop symptoms. Outcomes of the disease in children are generally favorable.

Key words: Coronavirus infection, COVID-19, children, diarrhea, nausea, vomiting.

KLINIK KO'RINISHLAR: COVID-ASSOTSIIATSIYALANGAN DIAREYA SINDROMI

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Maqolada 8 yoshdan 16 yoshgacha bo'lgan bolalarda koronavirus bilan kasallangan 37 bemor, 22 o'g'il (59,5%), 15 qiz (40,5%) kuzatuv natijalari keltirilgan. COVID-19 koronavirus infeksiyasini tashxislash uchun laboratoriya tasdiqlanishi yoki o'ziga xos klinik belgilar, shu jumladan pnevmoniya bo'lishi kerak edi. Tadqiqotning birinchi natijalari bolalarda koronavirus infeksiyasini oldini olish va erta aniqlash muhimligini ko'rsatadi. Bolalardagi COVID-19 kursi bir qator o'ziga xos xususiyatlarga ega, xususan, kasallik ko'pincha asemptomatik yoki aniq klinik ko'rinishga ega emas. Ovqat hazm qilish simptomlari bo'lgan COVID-19 bo'lgan bolalarda ovqat hazm qilish simptomlari bo'lmaganlarga qaraganda klinik natijasi yomonroq va og'ir kasalliklarga chalinish xavfi yuqori bo'lib, nafas olishdan oldin kasallikning dastlabki bosqichida COVID-19dan shubhalanish uchun diareya kabi simptomlarni ko'rib chiqish muhimligini ta'kidlaydi alomatlar rivojlanadi, alomatlar. Bolalardagi kasallikning natijalari odatda ijobiydir.

Kalit so'zlar: COVID-19, koronavirus infeksiyasi, bolalar, diareya, ko'ngil aynishi, qusish.

КЛИНИЧЕСКИЕ ПРОЯВЛЕНИЯ: COVID-АССОЦИИРОВАННЫЙ ДИАРЕЙНЫЙ СИНДРОМ

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В статье представлены результаты наблюдения 37 больных с коронавирусной инфекцией у детей, от 8 лет до 16 лет, мальчики 22(59,5%), девочки 15(40,5%). Для диагноза коронавирусной инфекции, вызванной вирусом COVID-19, требовалось либо лабораторное подтверждение, либо наличие характерных клинических признаков, включая пневмонию.

Первые результаты исследования свидетельствуют о важности профилактики и своевременного выявления коронавирусной инфекции у детей. Течение COVID-19 у детей имеет ряд специфических черт, в частности заболевание часто протекает бессимптомно или с невыраженной клинической картиной. Дети COVID-19 с пищеварительными симптомами имеют худший клинический исход и более высокий риск тяжёлого течения по сравнению с теми, кто не имеет пищеварительных симптомов, что подчеркивает важность учета таких симптомов, как диарея, чтобы заподозрить COVID-19 на ранних стадиях заболевания до развития респираторных симптомов. Исходы заболевания у детей, как правило, благоприятные.

Ключевые слова: Коронавирусная инфекция COVID-19, дети, диарея, тошнота, рвота.

Relevance

At the end of 2019, an outbreak of a new coronavirus infection occurred in the People's Republic of China (PRC) with an epicenter in Wuhan city (Hubei province). On February 11, 2020, the World Health Organization (WHO) determined the official name of the infection caused by the new coronavirus - COVID-19 ("Coronavirus disease 2019"). On February 11, 2020, the International Committee on Taxonomy of Viruses assigned the official name to the causative agent of the infection - SARS-CoV-2 [2]. The advent of COVID-19 has posed challenges for healthcare professionals to quickly diagnose and provide medical care to patients. An intensive study of the clinical and epidemiological characteristics of the disease continues, and the development of new means of its prevention and treatment. The most common clinical manifestation of a new variant of coronavirus infection is bilateral pneumonia (viral diffuse alveolar injury with microangiopathy); acute respiratory distress syndrome (ARDS) was recorded in 3-4% of patients. In some patients, hypercoagulable syndrome with thrombosis and thromboembolism develops, other organs and systems are also affected (central nervous system, myocardium, kidneys, liver, gastrointestinal tract, endocrine and immune systems), and sepsis and septic shock may develop. Currently, following the 2019 coronavirus infection (COVID-19) outbreak, the disease is spreading like an avalanche around the world and finding numerous epicenters. Coronavirus infection COVID-19 is an acute infectious disease caused by a new virus strain from the SARS-CoV-2 genus of coronaviruses with aerosol-droplet and contact-household

transmission mechanisms, with a tendency to lung tissue, proceeding from asymptomatic virus carriage to clinically expressed forms of the disease characterized by intoxication, inflammation of the upper and lower respiratory tract, up to pneumonia with the risk of severe acute respiratory distress syndrome and sepsis. [1,2]. Cases of COVID-19 infection have been reported in most countries of the world on all continents, most of which were associated with travel to the PRC; from the end of February 2020 - to Italy, South Korea, Iran. Since the end of March, the defeat of the US population has been growing at an outstripping rate. As of April 2020, more than a million people were infected in the world, over fifty thousand deaths associated with an infectious disease were registered [3,4]. The most affected regions are the USA, Italy, Spain, France and some other countries on various continents. In the Russian Federation, the total number of infected people is several thousand, and their number is increasing daily. About 20% of patients require hospitalization, mortality varies greatly in different countries and depends on a number of factors, ranging from 1 to 15.2% [5, 6].

On February 11, 2020, the coronavirus research group of the International Committee on Virus Systematics issued a statement announcing the official designation of the new virus: Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) [7]. According to the Agency of Sanitary and Epidemiological Welfare of the Ministry of Health of the Republic of Uzbekistan, as of April 13, 2020, among 896 cases, 12 (1.34%) children were registered in Uzbekistan, of which 5(0.56%) children aged 0-9 years. 10-19 years old - 7 (0.78%) children. There are no

lethal outcomes among children [1, 3]. The entrance gate of the pathogen is the epithelium of the upper respiratory tract and epithelial cells of the stomach and intestines. The initial stage of infection is the penetration of SARS-CoV-2 into target cells that have type II angiotensin-converting enzyme receptors (ACE2). When it enters the gastrointestinal tract, the virus interacts with receptors located on the mucous membranes of the esophagus, stomach and small intestine. As a result, gastrointestinal symptoms develop: nausea, abdominal pain and diarrhea. According to statistics, manifestations from the gastrointestinal tract are observed in 5-18% of patients. Moreover, most often diarrhea with COVID-19 accompanies respiratory symptoms: cough, burning sensation in the nose and throat. However, diarrhea may be the only symptom of the disease. Due to the special structure with spike-like processes, the covid19 molecules instantly take root in the body. They get into it not only by airborne droplets, but also by fecal-oral. Most often, the infection is transmitted through saliva and through dirty hands. In the first case, the person is affected by the respiratory, and in the second, by the intestinal form of the coronavirus.

The purpose of our work was to identify and study the features of the clinical manifestations of COVID-associated diarrheal syndrome.

Materials and methods

37 patients with coronavirus infection in children, from 8 to 16 years old, were examined on the basis of the Republican Specialized Hospital No. 1-Zangiota. For the diagnosis of coronavirus infection caused by the COVID-19 virus, either laboratory confirmation or the presence of characteristic clinical signs, including pneumonia, was required [3]. Specific laboratory diagnostics: 1. Detection of 2019-nCoV RNA by PCR. 2. Identification of immunoglobulins of classes A, M, G (IgA, IgM B IgG) to SARS-CoV-2 (including the receptor binding domain of surface glycoprotein S).

Basic laboratory tests: 1. Complete general blood count; 2. Biochemical blood test (AST, ALT, LDH, urea, creatinine, glucose). 3. Coagulogram. 4. C-reactive protein, 5. Procalcitonin. 6. Ferritin. 7. General analysis of urine. The diagnosis of COVID-19 coronavirus infection required either laboratory confirmation or the presence of characteristic clinical signs, including pneumonia [4]. To determine the severity of COVID-19, the classification presented in the "Temporary guidelines for the diagnosis, prevention and

treatment of new coronavirus infection of the Ministry of Health of the Russian Federation" was used [4].

Results and its discussion

Clinical observation and examination of 37 children aged 8 to 16 years, 22 boys (59.46%), 15 girls (40.54%) were carried out. When collecting an epidemiological history, the presence of foreign travel 14 days before the first symptoms was taken into account, as well as the presence of close contacts over the past 14 days with persons suspected of being infected with SARS-CoV-2, or persons whose diagnosis of COVID-19 was confirmed by laboratory. Even in the absence of typical complaints in children, imaging of the lungs was performed even in the absence of physical signs of pneumonia. Computed tomography of the chest revealed changes that manifested themselves in the form of "ground glass" symptom 8 (21.62%), local consolidates 4 (10.81%), bilateral consolidates 2 (5.41%) and interstitial changes 1 (2.70%).

The total distribution of all clinical cases according to the severity of the course was as follows: in 11 (29.73%) cases, there was a "mild" course without any symptoms of pneumonia, another 14 (37.84%) children had "moderate" manifestations, i.e. of moderate severity with symptoms of viral pneumonia. In 2 (5.41%) cases, it was necessary to carry out treatment in an intensive care unit with the connection of a ventilator, which prevented the development of deaths. The average time from the onset of symptoms of the disease was 5 - 6 days. Patients with mild cases of the disease recovered within 2 weeks, while in patients with moderate infection, children recovered within 3-6 weeks. No deaths were observed. Clinical manifestations of Covid-19 in children were manifested by fever, which was observed up to 37.5 ° C in 16 (43.24%) children, up to 37.5-39 ° C in 11 (29.73%) children, cough - somewhat less frequently in 13 (35.13%). Headache was observed in 5 (13.5%). Other clinical manifestations of the disease, such as weakness, were found in 2 children (7.41%), myalgia in 4 (10.8%) and shortness of breath in 3 (8.1%). The results of the study showed that children with COVID-19 had olfactory disorders, anosmia 2 (5.4%).

The results of the study showed that a disorder of the gastrointestinal tract was sometimes detected by the first symptom of coronavirus 10 (27.0%), sometimes nausea 2 (5.4%), vomiting 3 (8.1%) and abdominal pain 1 (2.7%), diarrhea developed in the course of illness on day 3-5 3 (8.1%). The most characteristic signs of such

diarrhea are: the frequency of 4-6 times a day, the mucous nature of the discharge without streaks of blood and greenery, the absence of severe abdominal pain. The results of the study show the following order of development of COVID-19 symptoms: fever, cough, muscle pain, nausea or vomiting and diarrhea, with nausea and vomiting appearing in COVID-19 before diarrhea. These symptoms could only last for one day. Some children with COVID-19 developed diarrhea and nausea before developing fever and respiratory symptoms.”

Lymphocytopenia against the background of coronavirus infection was observed in 51.4% of patients, thrombocytopenia - in 24.3%. Comparative analysis showed that against the background of coronavirus infection in children, there is a significant decrease in the average levels of leukocytes, followed by their recovery (from the initial $10.7 \pm 3.3 \times 10^9 / L$, a decrease to $6.1 \pm 0.7 \times 10^9 / L$ against the background infections with subsequent recovery to $9.2 \pm 2.8 \times 10^9 / L$ after the onset of remission). Mean levels of total bilirubin, urea, creatinine, potassium, and D-dimer increased during acute infection and recovered 2–4 weeks after remission. At the same time, the increased mean levels of AST and ALT did not decrease after remission. The data obtained with CT of the chest organs in patients with COVID-19 are confirmed by the results of PCR diagnostics in 66-80% of cases. Among patients with suspected COVID-19, the first PCR test was negative, but when re-examined in 27.0% of cases, the test was positive.

Conclusions

Thus, the results of the study indicate that the course of COVID-19 in children has a number of specific features, in particular, the disease is often asymptomatic or with an unexpressed clinical picture. Some people with intestinal coronavirus may develop respiratory symptoms much later than a tract disorder. Practice has shown that respiratory system disorders, characteristic of covid, sometimes do not occur at all. Some people with intestinal

coronavirus may develop respiratory symptoms much later than a tract disorder. Practice has shown that respiratory system disorders, characteristic of covid, sometimes do not occur at all.

LIST OF REFERENCES:

1. Akhmedova DI, et al. Diagnosis, treatment and prevention of coronavirus infection COVID-19 in children. / Akhmedova DI, Inoyatova FI., Tuychiev L.N., Daminov B.T., Kamilov A.I., Shamsiev F.M., Kamilova A.T., Aripov A.N., et al. // Temporary clinical guidelines. - 2021
2. Kamkin E.G. Temporary guidelines. Prevention, diagnosis and treatment of the new coronavirus infection COVID-19. / Version 10 (02/08/2021). - 260 pp. - Ministry of Health of the Russian Federation. - The team of authors.
3. Daminova M.N., Tashpulatova F.K. Coronavirus infection COVID-2019 in children at the present stage // Tutorial. - 2021.-121s.
4. Features of clinical manifestations and treatment of a disease caused by a new coronavirus infection (COVID-19) in children. (Method recommendations of the Ministry of Health of the Russian Federation Version 2 (07/03/2020).
5. Aggarwal R., Sentz J., Miller M.A. Role of zinc administration in prevention of childhood diarrhea and respiratory illnesses: A meta-analysis. *Pediatrics* 2007, 119, 1120-1130
6. Belot A, Antona D, Renolleau S, et al. SARS-CoV-2-related pediatric inflammatory multisystem syndrome, an epidemiological study, France, 1 March to 17 May 2020. *Euro Surveill.* 2020 Jun; 25 (22)
7. CDC COVID-19 Response Team. Coronavirus Disease 2019 in Children - United States, February 12-April 2, 2020. *MMWR Morb Mortal Wkly Rep.* 2020; 69 (14): 422-6. Epub 2020/04/10.

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